CT-PPS Quartic Geant4 simulation tool

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

G4SteppingVerbose
    QuartLSteppingVerbose 9
G4UImessenger
    QuartLPrimaryGeneratorMessenger 8
G4UserEventAction
    QuartLEventAction 7
G4UserRunAction
    QuartLRunAction 8
G4UserStackingAction
    QuartLStackingAction 8
G4VSensitiveDetector
    DetectorSD 5
G4VUserActionInitialization
    QuartLActionInitialization 5
G4VUserDetectorConstruction
    QuartLDetectorConstruction 6
G4VUserPrimaryGeneratorAction
    QuartLPrimaryGeneratorAction 7
QuartLAnalyzer 6

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

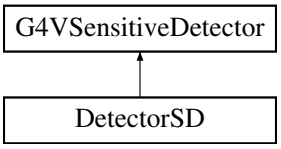
DetectorSD 5
QuartLActionInitialization 5
QuartLAnalyzer 6
QuartLDetectorConstruction 6
QuartLEventAction 7
QuartLPrimaryGeneratorAction 7
QuartLPrimaryGeneratorMessenger 8
QuartLRunAction 8
QuartLStackingAction 8
QuartLSteppingVerbose 9

Chapter 3

Class Documentation

3.1 DetectorSD Class Reference

Inheritance diagram for DetectorSD:



Public Member Functions

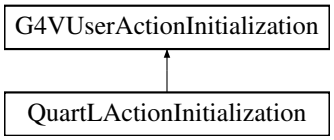
- **DetectorSD** (G4String)
- void **Initialize** (G4HCofThisEvent ∗)
- G4bool **ProcessHits** (G4Step ∗, G4TouchableHistory ∗)
- void **EndOfEvent** (G4HCofThisEvent ∗)

The documentation for this class was generated from the following file:

- include/DetectorSD.hh

3.2 QuartLActionInitialization Class Reference

Inheritance diagram for QuartLActionInitialization:



Public Member Functions

- virtual void **BuildForMaster** () const
- virtual void **Build** () const

The documentation for this class was generated from the following file:

- include/QuartLActionInitialization.hh

3.3 QuartLAnalyzer Class Reference

`#include <QuartLAnalyzer.hh>`

Public Member Functions

- QuartLAnalyzer (G4String filename="events.root")

  Default class constructor to book the TTree and its different leaves to store the information.
- void AddHitInEvent (G4Step ∗step)

  Add a new photon hit on the PMT in the events' collection.
- void **FillTree** ()
- void Store ()

  Store the TTree onto an external ROOT file.

3.3.1 Detailed Description

Analysis class intended to store into a TTree the photons kinematic information for each event.

3.3.2 Constructor & Destructor Documentation

3.3.2.1 QuartLAnalyzer::QuartLAnalyzer (G4String *filename* = `"events.root"`)

Default class constructor to book the TTree and its different leaves to store the information.

Parameters

in	*filename*	The file name to store the output tree.

3.3.3 Member Function Documentation

3.3.3.1 void QuartLAnalyzer::AddHitInEvent (G4Step ∗ *step*)

Add a new photon hit on the PMT in the events' collection.

Parameters

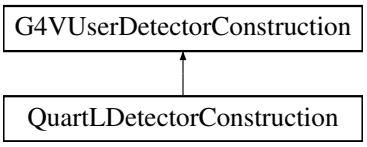
in	*step*	The Geant4 iterative step from which the photon kinematics is extracted.

The documentation for this class was generated from the following file:

- include/QuartLAnalyzer.hh

3.4 QuartLDetectorConstruction Class Reference

Inheritance diagram for QuartLDetectorConstruction:



Public Member Functions

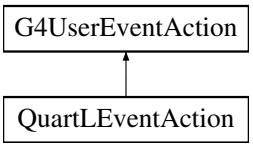
- G4VPhysicalVolume ∗ **Construct** ()

The documentation for this class was generated from the following file:

- include/QuartLDetectorConstruction.hh

3.5 QuartLEventAction Class Reference

Inheritance diagram for QuartLEventAction:



Public Member Functions

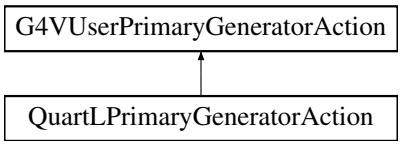
- void **BeginOfEventAction** (const G4Event ∗)
- void **EndOfEventAction** (const G4Event ∗)

The documentation for this class was generated from the following file:

- include/QuartLEventAction.hh

3.6 QuartLPrimaryGeneratorAction Class Reference

Inheritance diagram for QuartLPrimaryGeneratorAction:



Public Member Functions

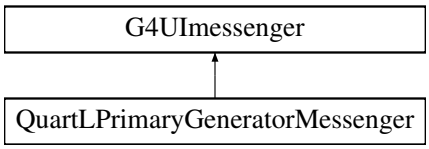
- void **GeneratePrimaries** (G4Event ∗)
- void **SetOptPhotonPolar** ()
- void **SetOptPhotonPolar** (G4double)

The documentation for this class was generated from the following file:

- include/QuartLPrimaryGeneratorAction.hh

3.7 QuartLPrimaryGeneratorMessenger Class Reference

Inheritance diagram for QuartLPrimaryGeneratorMessenger:



Public Member Functions

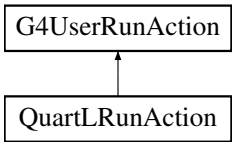
- **QuartLPrimaryGeneratorMessenger** (QuartLPrimaryGeneratorAction ∗)
- void **SetNewValue** (G4UIcommand ∗, G4String)

The documentation for this class was generated from the following file:

- include/QuartLPrimaryGeneratorMessenger.hh

3.8 QuartLRunAction Class Reference

Inheritance diagram for QuartLRunAction:



Public Member Functions

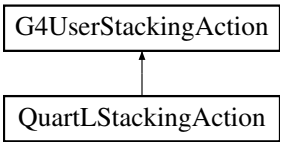
- **QuartLRunAction** (QuartLAnalyzer ∗analyzer=0)
- void **BeginOfRunAction** (const G4Run ∗aRun)
- void **EndOfRunAction** (const G4Run ∗aRun)
- QuartLAnalyzer ∗ **GetAnalyzer** ()

The documentation for this class was generated from the following file:

- include/QuartLRunAction.hh

3.9 QuartLStackingAction Class Reference

Inheritance diagram for QuartLStackingAction:



Public Member Functions

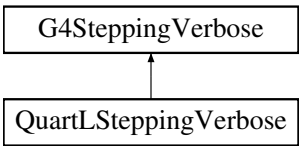
- G4ClassificationOfNewTrack **ClassifyNewTrack** (const G4Track ∗aTrack)
- void **NewStage** ()
- void **PrepareNewEvent** ()

The documentation for this class was generated from the following file:

- include/QuartLStackingAction.hh

3.10 QuartLSteppingVerbose Class Reference

Inheritance diagram for QuartLSteppingVerbose:



Public Member Functions

- void **StepInfo** ()
- void **TrackingStarted** ()

The documentation for this class was generated from the following file:

- include/QuartLSteppingVerbose.hh